Practice: 516 - Pipeline

Scenario # 1 Above Ground Pipeline

Scenario Description: **Missouri**

An above ground plastic pipeline is installed to convey water from a source of supply to points of use for livestock in a prescribed grazing system or wildlife for temporary watering locations.

Before Practice Situation:

Livestock have an inadequate or unacceptable water supply which can lead to compromised animal health. Water can be supplied from a central source(s) by piping to one or more locations in the pasture. Water locations are temporary and occur during non-freezing times of the year.

After Practice Situation:

An above ground plastic pipeline is installed to convey water from a water source to point of use for temporary watering. Payment incorporates pipe and quick connect coupler and fittings. The pipeline is installed as a facilitating practice for supplying water in a managed grazing system, to reduce soil erosion, improve water quality, improve health and vigor of key forage plant species and improve or maintain animal health. The pipeline is to be protected from UV radiation damage, as well as damage from vehicles, animals, people, and fire. The landowner is responsible for repair or replacement of the pipeline as necessary under O&M during the specified life span of the practice. Cost data is applicable to organic and conventional agricultural production systems. Associated practices include Fencing (382), Prescribed Grazing (528), Animal Trails and Walkways (575), Access Control (472), Pumping Plant (533), Water Well (642), Heavy Use Area (561) and Watering Facility (614).

Scenario Feature Measure:

Foot

Scenario Typical Size:	2000	Linear Foot	Tot Unit Cost	$1.21

Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Pipe, HDPE, smooth wall, weight priced	878	Pound	$2.38	$2,089.64
Labor	General Labor	10	Hour	$21.56	$215.60
Mobilization	Mobilization, very small equipment	2	Each	$55.50	$111.00
				Total Cost:	$2,416.24

Payment types:

PayType	Unit Payment	PayType	Unit Payment
EQIP	$0.91	EQIP-HU	$1.09
WHIP	$0.91	WHIP-HU	$1.09
EQIP-NOI	$0.91	EQIP-HUNOI	$1.09
EQIP-MRBI	$0.91	EQIP-HUMRBI	$1.09
WHIP-MRBI	$0.91	WHIP-HUMRBI	$1.09
EQIP-CCPI	$0.91	EQIP-HUCCPI	$1.09

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Scenario # 2 **Cased Pipeline with Boring**

Scenario Description: **Missouri**

Installation of a 2"- 3" plastic pipeline within an outer casing, bored under a road or other obstruction to convey water from a source of supply to points of use for livestock in a prescribed grazing system or wildlife.

Before Practice Situation:

Livestock have an inadequate or unacceptable water supply which can lead to compromised animal health. Water can be supplied from a central source(s) by piping to one or more locations in the pasture. Soil conditions or location require boring to facilitate pipe installation.

After Practice Situation:

The typical installation consists of installing 60 feet of a 2.5 inch, Schedule 40 PVC plastic pipe with a 4 inch outer casing under a roadbed. Pipeline boring includes all pipe under roadbed and labor and equipment involved during installation of pipe. The pipeline is installed as a facilitating practice for supplying water in a managed grazing system, to reduce soil erosion, improve water quality, improve health and vigor of key forage plant species and improve or maintain animal health. Payment incorporates couplers and fittings. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Associated practices include Fencing (382), Prescribed Grazing (528), Animal Trails and Walkways (575), Access Control (472), Pumping Plant (533), Water Well (642), Heavy Use Area (561) and Watering Facility (614).

Scenario Feature Measure:

Foot

Scenario Typical Size:	60	Linear Foot	Tot Unit Cost	$74.76

Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Pipe, PVC, dia. < 18", weight priced	70	Pound	$1.36	$95.20
Materials	Pipe, PE, 4", DR 9	60	Foot	$6.86	$411.60
Equip./Install.	Horizontal Boring, > 3" diameter	60	Foot	$50.99	$3,059.40
Equip./Install.	Backhoe, 80 HP	1	Hour	$47.04	$47.04
Labor	General Labor	2	Hour	$21.56	$43.12
Labor	Equipment Operators, Heavy	1	Hour	$27.22	$27.22
Mobilization	Mobilization, medium equipment	4	Each	$200.43	$801.72
				Total Cost:	$4,485.30

Payment types:

PayType	Unit Payment	PayType	Unit Payment
EQIP	$56.07	EQIP-HU	$67.28
WHIP	$56.07	WHIP-HU	$67.28
EQIP-NOI	$56.07	EQIP-HUNOI	$67.28
EQIP-MRBI	$56.07	EQIP-HUMRBI	$67.28
WHIP-MRBI	$56.07	WHIP-HUMRBI	$67.28
EQIP-CCPI	$56.07	EQIP-HUCCPI	$67.28

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Scenario # 3 Buried Nonbedded, < 2"

Scenario Description: **Missouri**

Installation of a non-bedded plastic pipeline, less than 2" diameter, by backhoe across a stream or other locations where installation of the pipeline by trenching or plowing is not feasible for the purpose of conveying water from a water supply source to points of use for livestock in a prescribed grazing system or wildlife.

Before Practice Situation:

Livestock have an inadequate or unacceptable water supply which can lead to compromised animal health. Water can be supplied from a central source(s) by piping to one or more locations in the pasture.

After Practice Situation:

800 feet of 1 1/2", Schedule 40 PVC plastic pipeline, installed in pastureland as part of a livestock water delivery system. The pipeline is installed as a facilitating practice for supplying water in a managed grazing system, to reduce soil erosion, improve water quality, improve health and vigor of key forage plant species and improve or maintain animal health. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Associated practices include Fencing (382), Prescribed Grazing (528), Animal Trails and Walkways (575), Access Control (472), Pumping Plant (533), Water Well (642), Heavy Use Area (561) and Watering Facility (614).

Scenario Feature Measure:

Foot

Scenario Typical Size:	800	Linear Foot	Tot Unit Cost	$2.32

Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Pipe, PVC, 1 ½", SCH 40	800	Foot	$0.77	$616.00
Equip./Install.	Backhoe, 80 HP	9	Hour	$47.04	$423.36
Labor	General Labor	8	Hour	$21.56	$172.48
Labor	Equipment Operators, Heavy	9	Hour	$27.22	$244.98
Mobilization	Mobilization, medium equipment	2	Each	$200.43	$400.86
				Total Cost:	$1,857.68

Payment types:

PayType	Unit Payment	PayType	Unit Payment
EQIP	$1.74	EQIP-HU	$2.09
WHIP	$1.74	WHIP-HU	$2.09
EQIP-NOI	$1.74	EQIP-HUNOI	$2.09
EQIP-MRBI	$1.74	EQIP-HUMRBI	$2.09
WHIP-MRBI	$1.74	WHIP-HUMRBI	$2.09
EQIP-CCPI	$1.74	EQIP-HUCCPI	$2.09

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Scenario # 4 Buried Bedded, < 2"

Scenario Description: **Missouri**

Installation of a gravel-bedded plastic pipeline, less than 2" diameter, by backhoe across a stream or other locations where installation of the pipeline by trenching or plowing is not feasible due to rock or other obstructions. Gravel bedding is necessary as part of the pipeline installation due to excessively rocky or otherwise unstable soil conditions so that the pipeline is evenly supported and protected from damage due to excessively rocky backfill material throughout the length of the trench. The purpose of the pipeline installation is to convey water from a water supply source to points of use for livestock in a prescribed grazing system or wildlife.

Before Practice Situation:

Livestock have an inadequate or unacceptable water supply which can lead to compromised animal health. Water can be supplied from a central source(s) by piping to one or more locations in the pasture. Soil conditions (excessively stoney soil, unstable soil or frequent crossing by heavy equipment) requires the pipe to be protected by gravel backfill.

After Practice Situation:

800 feet of 1 1/2", Schedule 40 PVC plastic pipeline is installed in gravel bedding by backhoe in pastureland as part of a livestock water delivery system. The pipeline is installed as a facilitating practice for supplying water in a managed grazing system, to reduce soil erosion, improve water quality, improve health and vigor of key forage plant species and improve or maintain animal health. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Associated practices include Fencing (382), Prescribed Grazing (528), Animal Trails and Walkways (575), Access Control (472), Pumping Plant (533), Water Well (642), Heavy Use Area (561) and Watering Facility (614).

Scenario Feature Measure:

Foot

Scenario Typical Size:	800	Linear Foot	Tot Unit Cost	$3.24

Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Pipe, PVC, 1 ½", SCH 40	800	Foot	$0.77	$616.00
Materials	Aggregate, Gravel, Graded	29.6	Cubic yard	$24.76	$732.90
Equip./Install.	Backhoe, 80 HP	9	Hour	$47.04	$423.36
Labor	General Labor	8	Hour	$21.56	$172.48
Labor	Equipment Operators, Heavy	9	Hour	$27.22	$244.98
Mobilization	Mobilization, medium equipment	2	Each	$200.43	$400.86
				Total Cost:	$2,590.58

Payment types:

PayType	Unit Payment	PayType	Unit Payment
EQIP	$2.43	EQIP-HU	$2.91
WHIP	$2.43	WHIP-HU	$2.91
EQIP-NOI	$2.43	EQIP-HUNOI	$2.91
EQIP-MRBI	$2.43	EQIP-HUMRBI	$2.91
WHIP-MRBI	$2.43	WHIP-HUMRBI	$2.91
EQIP-CCPI	$2.43	EQIP-HUCCPI	$2.91

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Scenario # 5 Buried Nonbedded, 2" - 3"

Scenario Description: **Missouri**

Installation of a non-bedded, 2"- 3" diameter, plastic pipeline by backhoe across a stream or other locations where installation of the pipeline by trenching or plowing is not feasible for the purpose of conveying water from a water supply source to points of use for livestock in a prescribed grazing system or wildlife.

Before Practice Situation:

Livestock have an inadequate or unacceptable water supply which can lead to compromised animal health. Water can be supplied from a central source(s) by piping to one or more locations in the pasture.

After Practice Situation:

800 feet of 2 1/2", Schedule 40 PVC plastic pipeline, installed in pastureland as part of a livestock water delivery system. The pipeline is installed as a facilitating practice for supplying water in a managed grazing system, to reduce soil erosion, improve water quality, improve health and vigor of key forage plant species and improve or maintain animal health. Payment incorporates couplers and fittings. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Associated practices include Fencing (382), Prescribed Grazing (528), Animal Trails and Walkways (575), Access Control (472), Pumping Plant (533), Water Well (642), Heavy Use Area (561) and Watering Facility (614).

Scenario Feature Measure:

Foot

Scenario Typical Size:	800	Linear Foot	Tot Unit Cost	$3.14

Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Pipe, PVC, dia. < 18", weight priced	935	Pound	$1.36	$1,271.60
Equip./Install.	Backhoe, 80 HP	9	Hour	$47.04	$423.36
Labor	General Labor	8	Hour	$21.56	$172.48
Labor	Equipment Operators, Heavy	9	Hour	$27.22	$244.98
Mobilization	Mobilization, medium equipment	2	Each	$200.43	$400.86
				Total Cost:	$2,513.28

Payment types:

PayType	Unit Payment	PayType	Unit Payment
EQIP	$2.36	EQIP-HU	$2.83
WHIP	$2.36	WHIP-HU	$2.83
EQIP-NOI	$2.36	EQIP-HUNOI	$2.83
EQIP-MRBI	$2.36	EQIP-HUMRBI	$2.83
WHIP-MRBI	$2.36	WHIP-HUMRBI	$2.83
EQIP-CCPI	$2.36	EQIP-HUCCPI	$2.83

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Scenario # 6 Buried Large Diameter >3"

Scenario Description: **Missouri**

Installation of a large diameter plastic pipeline to convey livestock water from a spring development to a watering facility to service a prescribed grazing system. A delivery pipe (typically 4" diameter, Schedule 40 PVC Plastic) from a spring development to a watering facility, or from water source to watering facility for gravity flow systems. The pipeline is installed as a facilitating practice for supplying water in a managed grazing system, to reduce soil erosion, improve water quality, improve health and vigor of key forage plant species and improve or maintain animal health. Payment incorporates couplers and fittings.

Before Practice Situation:

Livestock have an inadequate or unacceptable water supply which can lead to compromised animal health. Water can be supplied from a central source such as a spring by piping to a watering facility. Soil conditions are suitable for pipe installation without bedding.

After Practice Situation:

A delivery pipe (typically 4" diameter, Schedule 40 PVC Plastic) from a spring development to a watering facility, or from water source to watering facility for gravity flow systems. The pipeline is installed as a facilitating practice for supplying water in a managed grazing system, to reduce soil erosion, improve water quality, improve health and vigor of key forage plant species and improve or maintain animal health. Payment incorporates couplers and fittings. Cost represents typical situations for conventional, organic, and transitioning to organic producers. Associated practices include Fencing (382), Prescribed Grazing (528), Animal Trails and Walkways (575), Access Control (472), Pumping Plant (533), Water Well (642), Heavy Use Area (561) and Watering Facility (614).

Scenario Feature Measure:

Foot

Scenario Typical Size:	800	Linear Foot	Tot Unit Cost	$5.76

Cost Category	Component Name	Quantity	Unit	Unit Cost	Cost
Materials	Pipe, PVC, dia. < 18", weight priced	1742	Pound	$1.36	$2,369.12
Equip./Install.	Trenching, Earth, 12" x 70"	800	Foot	$2.03	$1,624.00
Labor	General Labor	3	Hour	$21.56	$64.68
Labor	Equipment Operators, Light	7	Hour	$20.92	$146.44
Mobilization	Mobilization, medium equipment	2	Each	$200.43	$400.86
				Total Cost:	$4,605.10

Payment types:

PayType	Unit Payment	PayType	Unit Payment
EQIP	$4.32	EQIP-HU	$5.18
WHIP	$4.32	WHIP-HU	$5.18
EQIP-NOI	$4.32	EQIP-HUNOI	$5.18
EQIP-MRBI	$4.32	EQIP-HUMRBI	$5.18
WHIP-MRBI	$4.32	WHIP-HUMRBI	$5.18
EQIP-CCPI	$4.32	EQIP-HUCCPI	$5.18